Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Restoring Internet Freedom	)	WC Docket No. 17-108
	)	
	)	

COMMENTS OF FRONTIER COMMUNICATIONS CORPORATION

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I. INTRODUCTION AND SUMMARY.

Frontier Communications Corporation, on behalf of itself and its incumbent local exchange carriers operating in twenty-nine states, ("Frontier") hereby submits comments to the Notice of Proposed Rulemaking.[1] Frontier applauds the Commission for proposing to end 1930s utility-style Title II regulation of broadband networks; this common sense step will promote broadband investment and innovation. As the Commission rightly notes, "for almost twenty years," prior to the 2015 *Title II Order*,[2] "the Internet flourished under a light-touch regulatory approach" that had been "put in place on a bipartisan basis."[3]

Frontier, like all Internet providers, remains committed to the fundamental principles of Internet freedom – no blocking, throttling, or unreasonable discrimination based on the content of the communications. But the current rules create vast uncertainty regarding regulatory creep and indeed explicitly favor the largest players in the Internet ecosystem – "edge providers" like

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[1] *Restoring Internet Freedom*, Notice of Proposed Rulemaking, WC Docket No. 17-108, FCC 17-60 (May 23, 2017) ("*NPRM*").

[2] *See Protecting and Promoting the Open Internet*, Report and Order on Remand, Declaratory Ruling, and Order, 30 FCC Rcd 5601 (2015) ("*Title II Order*").

[3] *NPRM* ¶ 1.

Netflix, Google, Amazon, and Facebook – over the companies that invest billions to bring broadband infrastructure to millions of Americans nationwide. Further, Frontier shares the Commission's concerns that the enhanced transparency requirements adopted in the *Title II Order* may be unduly burdensome and unnecessary in today's competitive broadband environment. By removing broadband from Title II, the Commission will foster continued broadband deployment and help ensure all Americans have access to the next-generation infrastructure they deserve.

II. REMOVING BROADBAND FROM TITLE II WILL REDUCE REGULATORY UNCERTAINTY AND PROMOTE INVESTMENT.

As the Commission recognizes in the *NPRM*, the "*Title II Order* has put at risk online investment and innovation, threatening the very open Internet it purported to preserve."[4] While Frontier opposed classifying broadband as a Title II service in 2015,[5] it has become even more clear in the two years since the *Title II Order* that imposing outdated utility-style regulation on the Internet was an unnecessary and misguided effort.

There is already a significant record demonstrating that the *Title II Order* has reduced investment. For example, by comparing the United States to Europe, which has primarily operated under Title II-style monopoly regulation, USTelecom estimates that the United States' light-touch framework encouraged $40 billion in broadband investment from 2002 to 2013.[6] Similarly, Dr. George S. Ford estimates that the mere threat of reclassification between 2011 and

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[4] *Id.* ¶ 4.

[5] *See*, *e.g.*, Comments of Frontier Communications, GN Docket No. 14-28 (July 18, 2014).

[6] Patrick Brogan, USTelecom – The Broadband Association, *Utility Regulation and Broadband Network Investment: The EU and US Divide* (Apr. 25, 2017), http://bit.ly/2q82hNW.

2015 reduced investment by over $30 billion annually.[7] Likewise, Kevin Hassett and Robert Shapiro explain that the uncertainty surrounding regulatory overreach can reduce broadband investment between 5%-20%.[8] And since the FCC adopted Title II in early 2015, experts estimate that investment in broadband declined between 2%-5.6%, translating to a drain of investment of $6 billion or more over the two years the regulation has been in place.[9] USTelecom has placed the decline in 2016 alone at $2.5 billion to $3 billion (or a decline of 3-4%) compared to before the *Title II Order* in 2014.[10]

General market trends over the past two years further confirm that Title II has created uncertainty and undermined broadband investment. While the "virtuous cycle" concept underlying the *Title II Order* (i.e., that greater edge provider use of networks will promote greater network investment) may be attractive in theory,[11] practice shows that markets have not viewed exploding edge provider traffic on broadband networks as increasing the value of those

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[7] Dr. George S. Ford, Phoenix Center for Advanced Legal & Economic Public Policy Studies, *Net Neutrality, Reclassification and Investment: A Counterfactual Analysis* (Apr. 25, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2963279.

[8] Kevin Hassett and Robert Shapiro, Georgetown Center for Business and Public Policy and NDN, *Regulation and Investment: A Note on Policy Evaluation Under Uncertainty, With an Application to FCC Title II Regulation of the Internet* (July 2015), http://bit.ly/2sQKZDT.

[9] *See* Hal Singer, *2016 Broadband Capex Survey: Tracking Investment in the Title II Era* (Mar. 1, 2017), http://bit.ly/2reYks0 (conducting a survey of twelve firms from 2014 to 2016 and explaining that capex declined 5.6 percent relative to 2014 levels); Michael Horney, Free State Foundation, *Broadband Investment Slowed by $5.6 Billion Since Open Internet Order* (May 5, 2017), http://bit.ly/2ta36E5 (estimating "foregone investment in 2015 and 2016 was about $5.6 billion"); Doug Brake, Information Technology & Innovation Foundation, *What Financial Data Shows About the Impact of Title II on ISP Investment* (June 2, 2017), http://bit.ly/2rDNhXn ("[F]inancial filings shows broadband investment went down roughly 2-3 percent after the Open Internet Order.").

[10] Patrick Brogan, USTelecom, *Broadband Investment Heads in the Wrong Direction* (May 5, 2017), http://bit.ly/2sMrIng.

[11] *See generally Title II Order*.

networks or investors' willingness to fund greater broadband deployment. In many cases the opposite has occurred, as network providers have needed to invest billions just to maintain the status quo peak speeds for customers as their use of high bandwidth applications provided by edge providers has boomed.

While an admittedly rough measure, viewing company stock prices at the time of the *Title II Order* versus today illustrates that investors generally have not been eager to put more money towards the companies that invest in broadband infrastructure, especially compared to the largest edge providers who most benefit from that infrastructure.[12] Examining nine of the largest Internet providers across wireline, cable and wireless (AT&T, Comcast, CenturyLink, Charter, Frontier, Sprint, T-Mobile, Verizon, and Windstream), these companies' average share prices grew about 7% less quickly than the S&P 500 more generally between the time the *Title II Order* was adopted and today. Indeed, several of these companies that historically have invested in rural deployments, including CenturyLink, Frontier, and Windstream, have experienced even less growth in share price. Meanwhile, the two edge providers that drive the most traffic on these networks saw shares soar over 80% over this same time frame. Indeed, the market capitalization of Google's two outstanding classes of shares (GOOG and GOOGL) approach double the market capitalization of these nine Internet providers combined.

Given the very regulatory and potentially invasive nature of Title II, it is perhaps unsurprising that it has had such a dampening effect on broadband investment and deployment. Indeed, Frontier, with its roots as a highly-regulated Title II provider, understands better than most all of the unnecessary burdens that come along with this extreme form of regulation. Title

[12] *See also* discussion *infra* Section IV (explaining how net neutrality rules tip the scales in favor of these largest edge providers).

II was designed for a time when there was a single monopoly phone company, not an era when consumers can choose between several wireline, wireless, mobile, and satellite providers, and more adults have opted to go wireless-only than maintain a landline.[13] From tariffing to rate regulation to controls over entry and exit, Title II is a top-down, highly prescriptive framework that cannot keep up with a competitive market, and fast-evolving and dynamic networks.

With all of these drawbacks and no real evidence of actual harms prevented by the *Title II Order's* rules, the Commission's cost-benefit analysis in this proceeding is straightforward. There are limited to no demonstrable benefits to retaining Title II regulation, and restoring the light-touch regulatory framework that existed prior to the *Title II Order* will go a long way towards reducing regulatory uncertainty and returning to the higher levels of investment Americans experienced under the former bipartisan, light-touch approach.

III. FRONTIER IS COMMITTED TO THE PRINCIPLES OF INTERNET FREEDOM AND FREE SPEECH.

Frontier, like other Internet service providers, has always been committed to the core principles of Internet freedom.[14] Frontier does not block or throttle customer access to content, and Frontier supports transparently sharing information about its services. Reclassifying broadband by removing it from Title II will not change Frontier's core commitment to principles of free speech and treating all Internet traffic the same regardless of content. As then-Chairman Powell enunciated in 2004 when originally identifying these "Internet freedoms," the freedoms "include the freedom to access lawful content, the freedom to use applications, the freedom to

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[13] National Center for Health Statistics, *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2016* (May 2017), http://bit.ly/2pC9LZ7.

[14] Frontier Communications, *Statement Regarding Net Neutrality* (Nov. 12, 2014) http://bit.ly/2tGmQTv.

attach personal devices to the network, and the freedom to obtain service plan information."[15] These freedoms are not in jeopardy.

Objections to removing broadband from Title II, however, have centered on misinformation and overblown claims that broadband providers will censor websites and communications.[16] Not so. As the Commission recognizes, the decision to remove broadband from Title II is fundamentally jurisdictional and not nearly so exciting.[17] Both Republicans and Democrats have agreed on the core net neutrality principles for well over a decade,[18] and even the NPRM leading up to the *Title II Order* embodied these principles through a lighter-touch approach under Section 706.[19]

To be extremely clear and at the risk of being repetitive, Frontier does not have any interest in favoring certain Internet content or in interfering with anyone's right to free speech. Frontier remains committed to ensuring its users can access the content of their choice. Indeed, the combination of competition in the broadband market and consumer expectations would significantly discipline any company that sought to micromanage a user's content. The fundamental Internet freedoms will remain as strong as ever, whether or not they are backed by outdated Title II regulation.

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[15] *NPRM* ¶ 13 (citing Michael K. Powell, Chairman, Federal Communications Commission, Preserving Internet Freedom: Guiding Principles for the Industry, Remarks at the Silicon Flatirons Symposium (Feb. 8, 2004), https://apps.fcc.gov/edocs_public/attachmatch/DOC-243556A1.pdf).

[16] *See, e.g.*, Internet Association, *Save the Open Internet* (last accessed July 12, 2017), https://netneutrality.internetassociation.org/action/.

[17] *See, e.g.*, *NPRM* ¶¶ 76-77.

[18] *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, Policy Statement, 20 FCC Rcd 14986 (2005).

[19] *Protecting and Promoting the Open Internet*, Notice of Proposed Rulemaking, 29 FCC Rcd 5561 (2014).

IV. THE TITLE II NET NEUTRALITY RULES TIP THE SCALES IN FAVOR OF THE VERY LARGEST EDGE PROVIDERS, WHICH DO NOT HELP FUND RURAL BROADBAND DEPLOYMENT OR FUND THE NETWORK UPGRADES THEY NECESSITATE.

The *Title II Order* in many ways got the real threat to Internet freedom exactly wrong. It is not Internet providers discriminating against edge providers but rather the largest edge providers failing to help finance the dramatic increases in traffic they drive that presents the greatest threat to Internet freedom and fast Internet speeds going forward. The *Title II Order* targeted Internet providers under the theory that they have leverage in negotiations with edge providers because they control a bottleneck resource – the last-mile to the end user. It turns out, however, that Internet providers – especially smaller and mid-size ones – have little to no negotiating leverage[20] compared to the Internet giants on the edge.[21] Rather, these largest players frequently crowd out other traffic and do not finance any of the infrastructure on which their services rely, particularly in the high-cost rural areas where smaller ISPs operate. Network providers are forced to use scarce capital dollars to increase the bandwidth on their transport networks to maintain speeds during peak traffic hours, and in many cases, these capital dollars are diverted from being able to further deploy broadband to the areas needing it most . . . Rural America. In this way, the greater threat to the Internet experience may in fact be these large edge providers refusing to help finance the robust networks.

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[20] *See, e.g.*, Letter from Small Internet service providers to Chairman Wheeler, GN Docket No. 14-28 (Feb. 17, 2015), http://bit.ly/2tJUuWD.

[21] *See, e.g.*, The Economist, *The World's Most Valuable Resource Is No Longer Oil, But Data* (May 6, 2017), http://econ.st/2taBNJX.

Just two edge providers – Netflix and YouTube – account for over half of all fixed Internet traffic in North America, according to Sandvine.[22] Yet by prohibiting paid prioritization and effectively preventing commercial negotiations, the Title II rules shield these largest providers from contributing anything to broadband deployment or contributing to the continued upgrades required to support their increasingly bandwidth-intensive services. The remaining six top drivers of fixed Internet traffic identified by Sandvine account for another 16%, with Amazon Video coming in third highest at 4.3%.[23] That means two companies are responsible for over half of Internet traffic, and eight sources are responsible for over two-thirds, yet the rules under the *Title II Order* effectively ensure these companies contribute nothing towards broadband infrastructure.

With Netflix and YouTube leading the way, the primary driver in the growth of network traffic is real-time entertainment applications, i.e., streaming of video and audio, and that trend is expected to continue. In 2016, real-time entertainment applications comprised 71% of fixed network traffic.[24] Sandvine predicts that these applications will surpass 80% of fixed traffic by the end of 2020 based on continuing adoption of streaming audio and video, and emerging technologies such as 4K, High-dynamic-range (HDR) video, and virtual reality.[25] Again, the *Title II Order* prevents even commercial negotiations with these Internet giants to help fund the upgrades their traffic is requiring.

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[22] Sandvine, *2016 Global Internet Phenomena: Latin America & North America* at 4 (2016), http://bit.ly/2gF7UeR. Netflix accounts for 35.2% and YouTube accounts for 17.5% for a total of 52.7% between these providers.

[23] *Id.* The next 5 highest drivers of network traffic are iTunes, Hulu, Xbox, Facebook, and BitTorrent.

[24] *Id.*

[25] *Id.*

The emergence of real-time entertainment as the primary driver of Internet traffic represents a fundamental shift in how networks are used from when this Internet freedom debate originally began in 2004 and even as recently as the FCC's 2010 Order. For example, Sandvine's 2009 Report did not even mention Netflix, which now accounts for over a third of all fixed downstream traffic.[26] Rather, in 2009, Sandvine was only just noting real-time entertainment traffic as an emerging trend: "[c]ompared to last year's results, real-time entertainment traffic . . . has exploded to now account for 26.6 percent of total traffic in 2009, up from 12.6 percent in 2008."[27]

Frontier's experience is consistent with this publicly reported data. Due almost exclusively to video traffic from the largest edge providers, Frontier's network is experiencing as much as 5% month-over-month growth in the capacity required to carry Internet traffic. Not only is average traffic exploding at an extreme pace, but because of the bursty nature of traffic at peak periods, the peak capacity requirements grow even more rapidly. Consumers expect and demand a buffering-free streaming experience, which is only possible if providers build to accommodate peak traffic usage, and consumers can demand this because of extensive competition in the market. Any time that a consumer experiences buffering, it is a potential point for customer churn.

Of course, it is not cost-free to continually upgrade networks to accommodate these peak traffic loads. Carrying all of these additional bits requires additional infrastructure – backhaul, last-mile builds, network hardware, and interconnection points – and Frontier each month must make sizeable capital expenditures simply to maintain the status quo of offering customers the

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[26] Sandvine, *2009 Global Broadband Phenomena* (2009), http://bit.ly/2sJqdWX.

[27] *Id.*

same speed capacity at peak hours. With necessarily limited capital budgets, these infrastructure upgrades to maintain status quo speeds directly divert funding from capital projects that would provide faster speeds to users who lack service, including those in rural areas.

Edge providers recognize the extent of the expenses their network traffic causes all too well and have sought to use "net neutrality" as a shield to avoid paying for the network upgrades caused by their exploding traffic. Far from a debate about freedom of speech and small Internet upstarts being able to reach their consumers, the real issue is that the few largest edge providers have sought to avoid paying anything for the infrastructure upgrades required to accommodate their traffic. Worse still, rather than seeking this result through market negotiations, the largest edge providers successfully won it through regulatory arbitrage in the *Title II Order* with the ban on paid prioritization, FCC jurisdiction over interconnection, and the overbroad Internet conduct standard. In practice, these rules gave edge providers a green light to continue to drive greater and greater network traffic at no costs, resulting in a direct drain on infrastructure investment in areas where it is needed most, including in rural areas.

In the short two years since the *Title II Order*, it has become even more clear that large edge providers have significant market power without any need for the Commission to put its thumb on the scales in their favor. Google (Market Cap: $1292B) and Netflix ($66B), in addition to Amazon ($482B) and Facebook ($455B) continue to earn outsize profits while paying nothing to the much smaller companies who supply the physical networks over which they deliver their content.

Theodore R. Bolema of The Free State Foundation explains that the FCC's justification for shielding edge providers from contributing to network costs does not hold water and, accordingly, that the rules slow capital investment and innovation.[28] As Bolema explains: "The FCC's justification for banning paid prioritization is little more than the theory of how a monopolist protected from competition can restrict output in order to drive up prices."[29] Specifically, a ban on paid prioritization would only benefit consumers if two faulty assumptions were true: "The broadband provider (1) must have a large market share and (2) must have some protection from new firms entering the market."[30] Of course, with telco, cable, fixed wireless, mobile wireless, and satellite providers, the United States broadband market is far from a monopoly and has never been more competitive. Whatever the merits of the "terminating monopoly" theory for a vanishingly small number of households,[31] it is not small and mid-sized providers like Frontier that have leverage in the negotiations with the Internet titans on the edge. Given these faulty assumptions underlying the paid prioritization ban, this policy "limits the return on investment by ISPs, so that they will invest less."[32]

Ultimately, removing broadband from Title II and avoiding unnecessarily tipping the scales in favor of the largest edge providers will promote broadband investment and expand broadband infrastructure. The biggest players in the Internet ecosystem do not need further regulatory handouts, especially if it means diverting resources from broadband investment in rural America.

[28] Theodore R. Bolema, *Allow Paid Prioritization on the Internet for More, Not Less, Capital Investment*, The Free State Foundation (May 1, 2017), http://bit.ly/2sinDao.

[29] *Id.* at 3.

[30] *Id.* at 5.

[31] *Title II Order* ¶ 20.

[32] Bolema, *supra* note 27, at 10.

V. ENHANCED TRANSPARENCY RULES MAY BE UNDULY BURDENSOME AND UNNECESSARY IN A COMPETITIVE MARKET.

Frontier shares the Commission's concerns regarding whether the enhanced transparency rules adopted in the *Title II Order* are unduly burdensome.[33] Frontier expended substantial resources in complying with these rules – particularly the nutrition label portions of the enhancements – and remains concerned that consumers that are already bombarded with information do not find this data valuable. Complex disclosures aside, consumers are very good at determining whether the service works, and given the continually expanding options in the market, are all too ready to switch if a provider fails to deliver. Indeed, in such a competitive market, managing customer expectations through transparent disclosures is key to retaining customers.

At a minimum, should the Commission decide to retain some form of the transparency rules, it needs to clarify the guidance offered by the Commission's Chief Technology Officer.[34] At all times prior to that guidance, participation and disclosure of the results of the FCC's Measuring Broadband America ("MBA") program served as a safe harbor for disclosure of accurate speed requirements. Frontier, like many other providers, participates in that program with that understanding and because of this safe harbor. However, without any analysis or justification – and without any notice or comment – the Chief Technology Officer potentially dramatically reduced the scope of the long-agreed upon safe harbor by suggesting it applied only to service tiers included in the MBA report.[35] In other words, the Chief Technology Officer

[33] *NPRM* ¶¶ 89-90.

[34] *Guidance on Open Internet Transparency Requirements*, Public Notice, 31 FCC Rcd 5330 (2016).

[35] *Id.* at 5-6 ("[F]ixed BIAS providers may disclose their results from the MBA program, for each service for which the program provides network performance metrics, as a sufficient

suggested broadband providers must test all of their speed tiers, even the ones the FCC in the MBA program determined were not popular enough to merit including in the testing. This dramatically expanded the scope of the Commission's transparency without any analysis of costs or benefits. Frontier thus requests that the Commission return to the understanding that participation in the MBA program comprises a safe harbor for all speed tiers.

VI. CONCLUSION.

By removing broadband from 1930s-era Title II monopoly regulation, the Commission will promote broadband deployment and all the associated downstream economic benefits of improved broadband infrastructure. As the Commission continues this process, it should consider how the networks of the future will be financed and how the largest players in the Internet ecosystem should contribute to the infrastructure needs created by their exploding traffic. Certainly, the Commission no longer need tip the scales in favor of the very largest Internet edge providers at the expense of broadband investment, especially in rural America.

Respectfully submitted,

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representation of actual download and upload speeds, actual latency, and actual packet loss of those services.").